Streamlining the SIM Lifecycle

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As SIMs evolve, and with eSIM becoming the next step in the evolutionary process, digitization is pushing the issue of SIM management up the priority chain of telco operational issues. SIM developments are raising a number of important questions, but one has emerged as key: how best should telcos address the blurring of traditional OSS and BSS lines of demarcation that new generations of SIMs demand? If they're not clear about this already, mobile operators are rapidly learning that changing infrastructure requirements are something that they need to address—now.

Why is this the case, and how urgent is the problem? The answers to "why" and the urgency question are related to the imperative of finding more efficient and less costly ways of managing growth. Today mobile operators are under pressure to reduce the spiraling costs of managing the end-to-end SIM lifecycle but, at the same time, they have to respond—if they want to gain competitive advantage—to an increasing requirement for 'subscriber intimacy.' Meeting both of these requirements—reducing spend in one case, and adding it in the other—demands a foot on each side of the boundary between the two traditionally different sets of operational management systems, OSS/BSS.

My experience in identifying the best way of crossing this divide strongly suggests the answer lies in a new digitalized, cost-effective approach to complete SIM Lifecycle Management. In fact, I would say that investigating such technologies is becoming a "must" for leading mobile operators. This is because, if a holistic strategy is put into place from ordering through to activation, provisioning, sales and beyond, it will help mobile operators both control and reduce the costs associated with MSISDN management while also satisfying the requirement for improving subscriber relationships. Additionally, it will help streamline network optimization and SIM logistics processes while driving net new sales that accrue through digitalized opportunities and subscriber interactions.

The many challenges of the eSIM era are upon us

For a mobile network operator, the emergence of eSIM adds a new layer of complexity to process management requirements, which are already extensive. They include the dynamic planning and maintaining of resources such as MSISDN, IMSI, ICCID, IP Addresses, SIM Profiles and IMEIs. Additionally, eSIM is already impacting consumer IoT and M2M markets, as they enable multiple mobile operators' profiles to be generated, securely downloaded and provisioned over the air based upon GSMA's Remote SIM Provisioning specifications. The immediate result of this expansion of functionality has been a notable growth in the number of MNOs deploying eSIM remote subscription management platforms, suggesting investing in infrastructure support for advances in SIM technology is unavoidable.

Alongside the deployment of these remote subscription management platforms comes an urgent need to align network resources with eSIM profiles. This is because each time a mobile device attaches and downloads a profile, the network will need to be updated. Questions such as "where will the eSIM attach on first use: a nominated single

network or an MNO within country?" become critical. Activity volume also becomes a pressing issue, as each eSIM will need an MSISDN and IMSI/network resource, assuming it will possible to perform the activation using the network in the first place.

The challenges involved are not confined to operational processes either. With the introduction of eSIM, it's likely that the number of network eSIM connections will increase rapidly as operators bring an ever-increasing number of low-cost data plans to market. When this happens, subscribers will need to be enabled to maintain their numbers on one network while their data may be purchased on a different network. Support for multiple eSIM profiles will therefore be needed to maximize coverage. For the service provider, this means that gaining access to state-of-the-art technologies supporting digital subscriber activation and total number management to manage resources for all the on-off connections as people switch to the cheapest data connection will become pressing.

The traditional SIM: There's life in it yet

While eSIMs are proliferating for the reasons partially outlined above, traditional SIM resources are not going to disappear, underlining that the industry is moving into a hybrid era. Driving sales of the physical SIM is—and will remain, for the foreseeable future anyway—important despite being potentially expensive. Why? The reason is that MNOs need to increase SIM supply despite the need for reducing costs and growing revenues at the same time. Fortunately, achieving this twin goal is possible using new upgrade strategies like self-service SIM swap. This strategy can activate new services in real-time by assigning MSISDNs and other resources at the time of first use and provide support for new initiatives to encourage SIM reactivation.

SIM Challenges: What happens next?

I've briefly outlined some of the challenges brought to the fore by the changing SIM environment. In light of them, what steps should you as a mobile operator be taking in response? Experience tells me that your best approach will be one that enables you to consider the entire SIM lifecycle and the impact on the subscriber from a single vantage point. If you can achieve this, the benefit is immediate. You'll be able to:

- Mobilize your salesforce
- Better address the complexities of number management
- Handle network provisioning, activation and verification quickly and simply
- Manage the SIM/eSIM activation process

What then, are the component parts of the proposed Complete (e)SIM Lifecycle Management technology I am proposing? In my view, they are as follows:

- **Manage Resources**, while keeping track of IMSIs, ICCIDs, MSISDNs, IP Addresses, IMEIs, and also managing SIM expiration and recycling of resources.
- **Provide regulatory reporting** and effectively manage and track SIM distribution, SIM profiles (eSIM) and assignment of SIM stock to defined locations.
- **Streamline the SIM ordering process** by planning and maintaining the use of resources through dynamic SIM allocation and efficient management.
- **Produce accurate resource reports** for regulators, ensuring utilization compliance.
- **Drive the sale of SIMs** through unique methods by increasing supply in the channel at a reduced cost, ultimately increasing your revenue.
- **Engage in new upgrade tactics** to help drive 4G/5G adoption (self-service SIM swap) and engage a mobile salesforce, supported by sales management tools and incentives for indirect channels.
- **Activate new services in real-time** by assigning MSISDNs and other resources at the time of first use, ultimately reducing or saving on costs.
- **Enable efficient service activation**, for subscriber on-boarding, network provisioning of services, remote SIM Provisioning/Bootstrap, and allocation of MSISDNs and IPs (no pre-pairing).

- **Provide loyalty, upsell and device over the air (OTA) management capabilities** by targeted marketing of new offers and unique loyalty models using third-party content.

There is more than one way of pursuing and implementing such a strategy. For instance, it could be delivered and deployed either as a SaaS cloud offering or as an on-premise solution.

As mobile operators attempt to expand market share in a rapidly changing SIM landscape, they should urgently think about taking a holistic approach to the challenges I've outlined. There is no advantage to relying on siloed legacy solutions no longer fit for the purpose when a new approach is required.